TRAPPING DUCKS FOR BANDING PURPOSES.

WITH AN ACCOUNT OF THE RESULTS OBTAINED FROM ONE WATER-FOWL STATION.

BY FREDERICK C. LINCOLN.

Plates XI–XIV.

THE marking of migratory waterfowl presents a most interesting phase of bird banding work to those persons so fortunately located as to be able to give it a portion of their time. Among the many advantages of such operations is the relatively great importance that attaches to detailed studies of these birds, and the assurance of solution of some of the problems because of the many "returns" that the operator will be justified in expecting from his activities. True, the returns are in most cases from dead birds, in contrast to the numerous returns that may be secured from a single individual of the non-game species through the continuous operation of the regular small bird trapping station. This is, however, largely offset by the greater number of returns from the birds that are hunted for sport, which may equal fifteen to twenty-five per cent of the total number banded. And when systematic trapping has been definitely applied to these groups at a large number of stations, the returns will, of course, be even greater.

With these facts in mind, the best methods of operation become of paramount importance, and in the following pages the writer endeavors to present the methods of duck trapping that have been tried by different collaborators of the U. S. Biological Survey, with comments on their effectiveness. There is also included a resumé of the results that have been obtained through the activities of one of the most successful stations, that at Lake Scugog, Ontario, Canada.

Traps for waterfowl fall naturally into two classes—those designed for the river or surface feeding species, and those adapted to diving ducks. Each of these may in turn be divided into those

that are automatic, or which do not require the presence of the operator, and those that are under more or less continuous observation and that are manipulated from a blind.

Thus far the surface-feeding ducks have received more attention than have those that obtain their food by diving in a considerable depth of water, and in consequence virtually all of the traps described have been developed for use in catching such birds. It is of decided importance that this partiality be overcome in the near future because there is quite as much to be learned regarding the migrations and habits of the diving ducks as of the more easily trapped surface feeders.

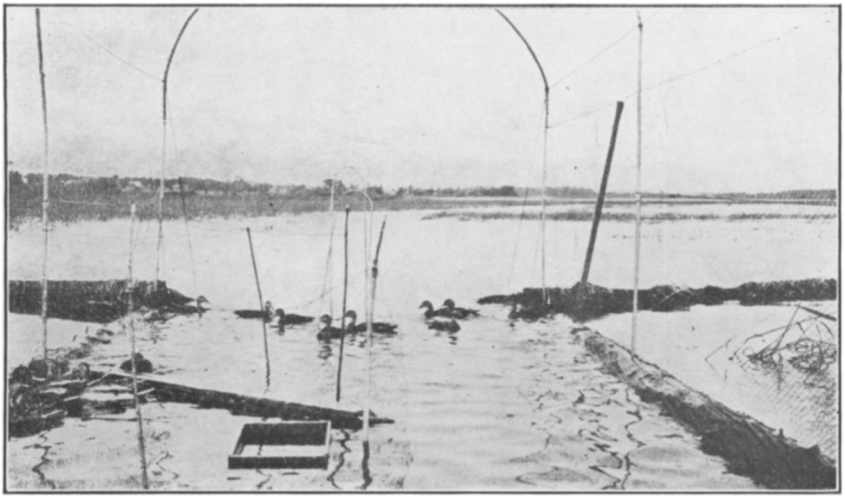
Automatic traps.—The principle of most automatic traps is that of "confusion," effected either by obstructing "wings" or by a simple adaptation of the funnel so successfully employed in the Government sparrow trap.[1] Mr. H. S. Osler of Toronto, Ontario, has developed a large trap of this type (See Plate XI) that has given exceptionally fine results. A raft, made by bolting planks to two cedar logs forty feet long and twelve feet apart, is employed for the foundation. Upon this is placed a framework of galvanized iron pipe covered with the regular two-inch hexagonal mesh poultry wire. Entrances are left at both ends and protected by short wings that serve to deflect any captured birds that might endeavor to escape. Doors are also provided which may be closed on the approach of the operator to band his captures. A small semicircular pen on one side near the center serves to confine a few live decoys. This trap is towed into position in a natural feeding area (in Mr. Osler's case a bed of wild rice) and the raft sunk below the surface of the water by covering the floor with mud. Mr. Osler's trap secured approximately 600 ducks of four species during the autumns of 1920 and 1921.

This is probably one of the best types of automatic trap on a large scale, and it will be readily apparent that the same general plan of construction may be followed for a non-automatic trap to be operated from a suitable observation point. Plate XII shows a trap of this kind that was built by the writer at Ray Lake,

[1] U. S. Department of Agriculture Circular No. 170, Contribution from the Biological Survey, *Instructions for Bird Banding*, by Frederick C. Lincoln.

near Oakville, Iowa. The trap chamber, measuring twenty feet long, eight feet high and six feet wide, was placed on the shore of the lake in an area where large numbers of Mallards had been fed by an active conservationist, Mr. Allen Green. Half of the front was converted into a door hinged at the top with wire loops, and swinging outwardly. This was supported in an open position by a strong cord that ran over the top of the chamber to the veranda of a cottage seventy-five yards away. A forked stick, lashed horizontally to one wall near the bottom, served as a catch to lock the door after it had been released. In the rear of the chamber a piece of netting extending between the walls formed a pen that confined the decoys. The lake at this time was frozen over, but had open water been available the effectiveness of the trap would have been greatly increased by providing wire netting wings, extending from the entrance in a widely diverging angle. These would have been carried as far as possible into the water and should have had the effect of forcing swimming birds in the direction of the door. Small funnel-like openings back of the wings at their junction with the trap chamber would permit the entrance of those birds that might work toward the trap from behind the wings. These directing wings may be used to advantage with almost every kind of trap.

A large automatic trap of the funnel type that was designed by the writer is shown on Plate XIII, fig. 1. This trap gave exceptionally fine results during recent (March, 1922) work in the Illinios River marshes. As used there, it was built in about two feet of water and consisted of a pen made by covering a framework of willow saplings with ordinary two-inch poultry wire, the bottom being secured by burying the netting deep in the mud with a number of forked stakes. The shape of the chamber was that of a deeply indented heart or water-lily leaf, the funnel forming the indentation, thus leaving large "pockets" on either side. Captured ducks will gather in these pockets and avoid the opening of the funnel which was almost or quite in the center of the chamber. Instead of "wings," a single "lead" or fence of wire netting was extended straight out from the exterior opening of the funnel for a distance of fifty or sixty feet. This was used because of the fact



PHOTOS BY H. S. OSLER.

1. LARGE AUTOMATIC TRAP, LAKE SCUGOG, ONTARIO.
2. REMOVING A DUCK FROM AUTOMATIC TRAP.

that the trap was set in the midst of a natural feeding area and not on a shore line.

Two of these traps caught a large number of birds, the record catch being shown in the illustration which amounted to practically one hundred Mallards, Pintails and Black Ducks. Considerable success was also obtained in this region by grouping several of the common "fyke" nets in shallow water and baiting the area with shelled corn. These nets, however, have a serious disadvantage in that the chambers are small and there is danger that so many birds may work into the second chamber as to force some under water and drown them. Plate XIII, fig. 2 shows a catch of Mallards and Pintails on one of these nets. Three nets were used in making the "set."

Another trap of the automatic variety has been developed by the writer for use where local conditions, such as a marsh of cattails or reeds, demand one of smaller size. They may, in fact, be termed portable traps, as distinguished from those that when once built are more or less permanent. A box or chamber measuring five feet long by two feet square is built from two-foot poultry wire. No corner posts are used, the stiffness of the netting giving ample strength, and the slight visibility that results from the absence of heavy supports is a feature highly desirable. Three pieces of netting are used, two sections five feet long for the top and bottom, and a third, about sixteen feet long, for the sides, back, and funnel. The funnel is formed by carrying the ends into the chamber in front, fastening them together for about half their width and spreading them apart at the bottom with a piece of heavy wire bent to form an inverted "U." All connections or joints are secured with wire by a pair of pliers. The jagged ends of the netting are left projecting into the chamber, which arrangement will effectually prevent captured birds from making their exit. Such traps are very light, and their simple construction and ready portability will permit their use in a wide variety of situations.

Non-automatic traps.—Where the ducks may be baited to the shore, a trap that throws a net is most satisfactory. One of this kind has been successfully used by Mr. Joseph Pulitzer, Jr., of

St. Louis, Missouri, at the Cuivre Island Club, Missouri, and at Bar Harbor, Maine. This is another of the non-automatic types, the principle involved being a development of the old spring-pole trap that was used so effectively in trapping Passenger Pigeons for the market. Two straight saplings, about forty feet long and five or six inches in diameter across the butt, are set firmly into the ground about seventy-five feet apart, at right angles to and back from the shore line. The tips should be elevated five or six feet, and the position of the poles maintained by forked posts set rigidly into the ground about mid-way of their length. The tips are connected by a piece of heavy wire (about number 8 or 10), and to this the net is attached. For a trap of the size described, the net should be about twenty feet square, although a larger net might be thrown to advantage by increasing the size of the spring poles. Two triggers or releases are provided which should be located about twenty-two feet apart in the area between the poles and about the same distance back of the normal position of the net wire. Plate XIV, fig. 2 shows the construction of these releases. Broom handles make excellent trigger poles, which are notched an inch or two from one end to hold the net wire. The supporting cleats, pull wire (lower center), net pile, and a portion of the baited area are also visible in this picture. The trap is set by pulling the net wire back to the trigger, where it is held in place by the notches in the trigger poles, the upper ends of which slip under the projecting cleats. This operation serves to bend the spring poles sharply inward and when fully set the net wire should form a straight line between the triggers with the net piled up smoothly behind it. The opposite end of the net is, of course, secured to the ground by stakes. A wire running from one of the trigger poles to a convenient blind, is pulled to release the trap. This will cause a simultaneous movement of the opposite pole, which, no longer held in place by the cleats, rises vertically, the throw wire slips off and flies forward, pulling the net with it. With powerful poles this action is extremely rapid and there is no time for a duck to escape. Plate XIV, fig. 1 shows the trap set at Cuivre Island, in which the bent spring poles, triggers, and

line of bait in front of the net are clearly visible. The live decoys used may also be observed at the shore line below the bait.

As stated previously, the trapping of diving ducks presents greater difficulties than of those species that feed on the shore or in comparatively shallow water. It should be remembered, however, that diving ducks usually dive when alarmed, and it is therefore doubtful whether an automatic trap would be advisable, as they might kill themselves if allowed to remain prisoners for any length of time. This is a matter that actual experiment must determine, for it is obvious that an automatic trap, if practical, will yield much greater results.

At the present time the most satisfactory trap for these birds is the one used by Dr. A. A. Allen of Cornell University, on Cayuga Lake, New York. In a natural feeding ground a three-sided pen is built of galvanized poultry wire. Iron pipes make the best corner posts; and care must be taken that the netting fits snugly to the bottom. About two feet of water will be a sufficient depth, and the netting should project a corresponding distance above the surface. No top is necessary because of the fact that diving ducks can not leave the water as readily as Mallards, Pintails, and other river ducks, but, instead, require a long start across the surface. As these birds will hesitate to swim under anything, this absence of a top has a decided advantage; and for the same reason the trap door that closes the fourth side should lie flat on the bottom when the pen is open. This door is best made by covering a frame of small gas pipe with the wire netting. A cord or wire, run to a suitable observation point, is used to raise the door and close the trap.

The matter of bait must always be given careful attention. At times, particularly during the summer, duck trapping may become the most disheartening kind of work, because of the actual indifference of the birds to cereal baits at a time when natural food is probably abundant. Generally speaking, corn (preferably cracked) will be found to be the best bait, but various small grains such as rice, wheat, kaffir corn, and barley may at times be used to advantage. Decoys are always advisable, since, as it usually takes from a few days to two weeks for wild ducks to

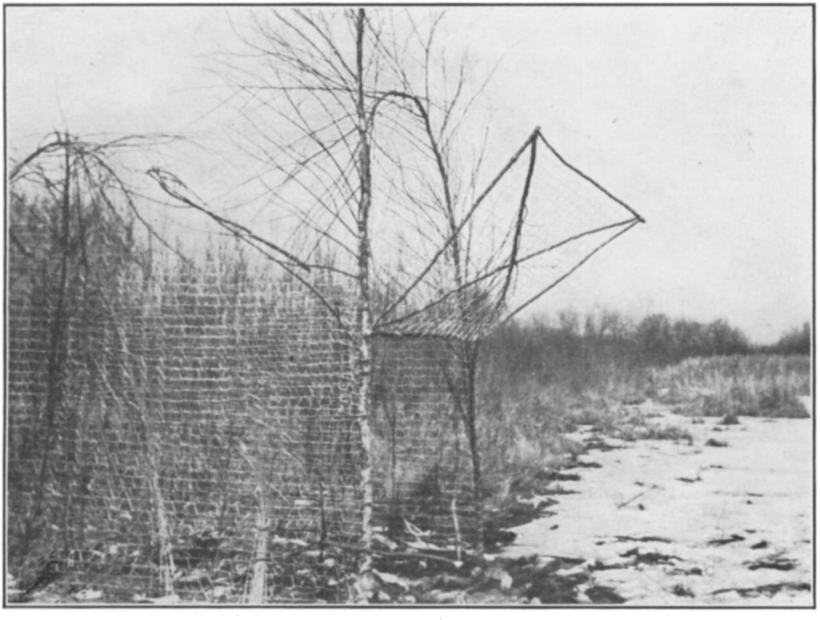
become sufficiently accustomed to the presence of the superstructure of the trap to venture near the bait, a few live decoys may prove of the greatest value in gaining their confidence.

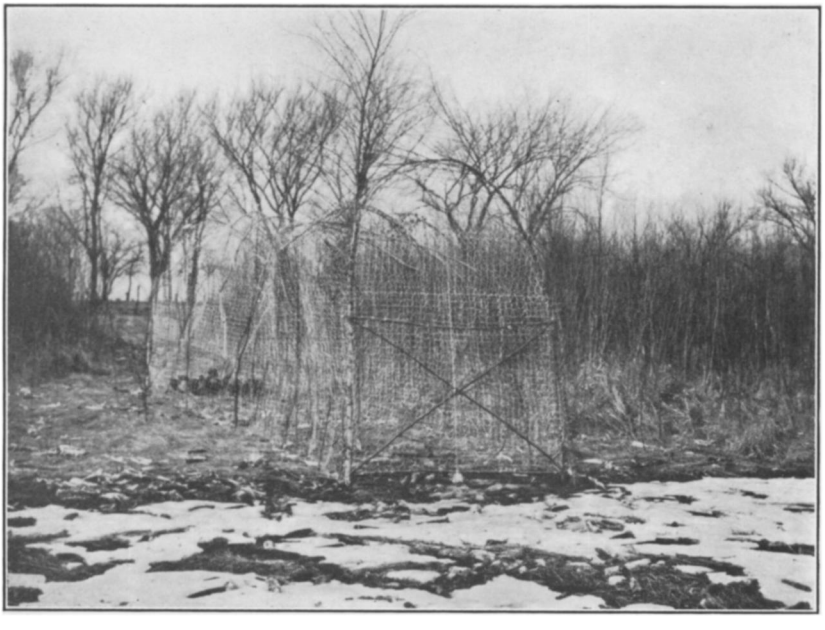
Results at Lake Scugog, Ontario.—Turning now to the relative importance of the systematic banding of waterfowl, a considerable amount of valuable data will be found in the results of the operations of Mr. H. S. Osler of Toronto, Ontario, in 1920.

Lake Scugog, where the trapping has been done, is a small body of water lying about sixteen miles due north of Lake Ontario, and separated from it by a continuous ridge, which reaches its crest four miles south of the former lake. This ridge attains a height of 800 feet above Lake Ontario but only 300 feet above the surface of Lake Scugog. With its surrounding marshes of wild rice and other aquatic plants, the lake seems to offer excellent opportunities for ducks to feed and rest before starting on the long flight to the south. It is also utilized to some extent as a breeding ground.

According to the observations of Mr. Osler, the great body of ducks moves southward at one time, generally about the middle of November, and coincident with the first heavy wind from the north or northwest. Prior to this major flight, scattering small flocks and isolated pairs drift southward in short flights. This is also attended by continuous influxes of migrants from the great inland breeding areas, each northerly wind bringing down its quota. These observations, based on several years experience in the Scugog marshes, have been fully verified by the "return" records of the banded birds.

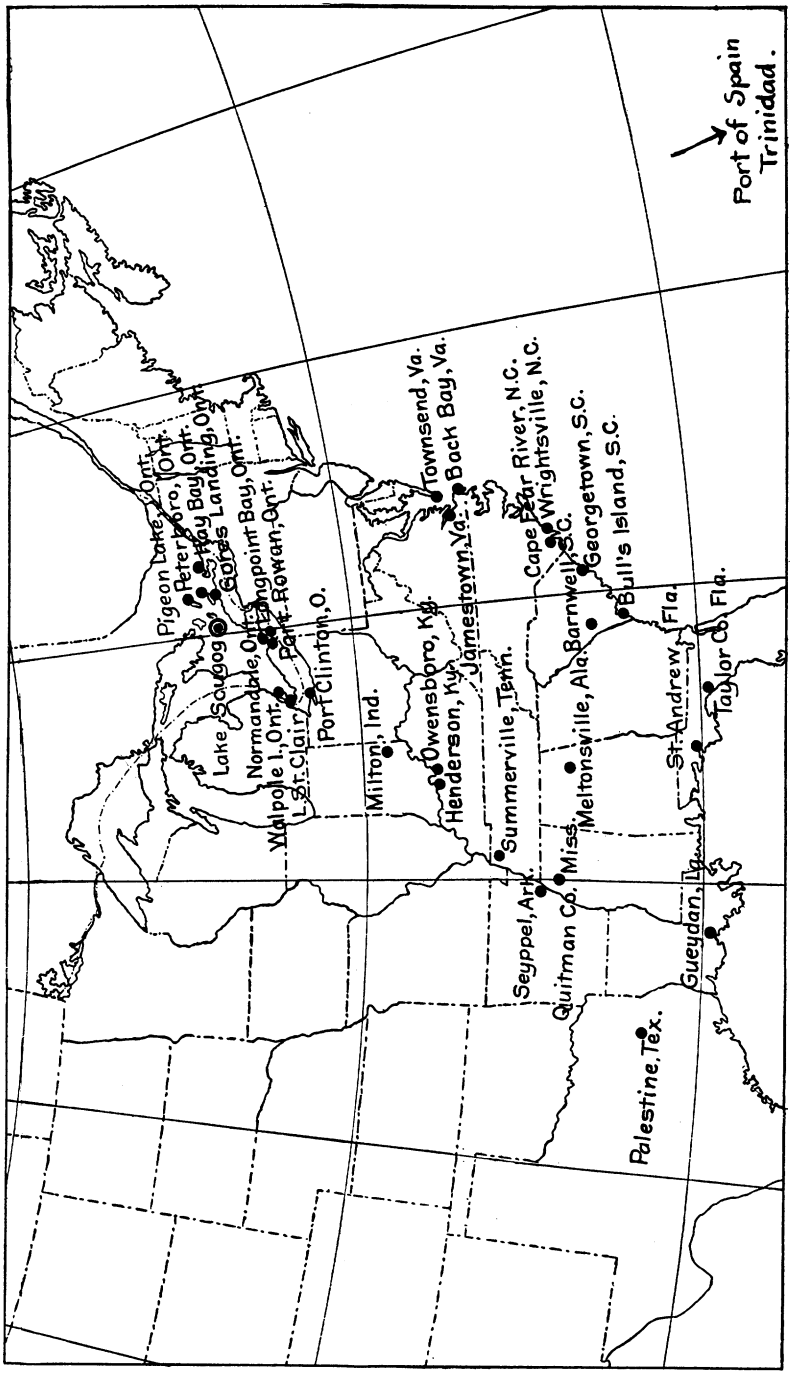
Trapping operations were begun about September 1, 1920. At this time the weather conditions were fair with moderate winds from southwest to north and the ducks then present (principally Mallards and Black Ducks) represented the local breeders with their progeny, with probably the van of those from the interior. The great bulk of the more northern-bred ducks arrived in September and October during a continued spell of mild weather, which afforded them an excellent opportunity to rest and feed in the Scugog and adjacent marsh lands. During these two months the trap was in full operation, the catch being 206 ducks of four





PHOTOS FROM BIOLOGICAL SURVEY.

1. LARGE NON-AUTOMATIC TRAP WITH DOOR OPEN.
2. LARGE NON-AUTOMATIC TRAP WITH DOOR CLOSED.


Port of Spain Trinidad.
Pigeon Lake, Ont.
Peterboro, Ont.
Hay Bay, Ont.
Gores Landing, Ont.
Lake Scugog
Normandale, Ont.
Longpoint Bay, Ont.
Port Rowan, Ont.
Walpole I., Ont.
St. Clair
Port Clinton, O.
Milton, Ind.
Owensboro, Ky.
Henderson, Ky.
Jamestown, Va.
Townsend, Va.
Back Bay, Va.
Cape Fear River, N.C.
Wrightsville, N.C.
Georgetown, S.C.
Bull's Island, S.C.
Barnwell, S.C.
Summerville, Tenn.
Meltonsville, Ala.
St. Andrew, Fla.
Taylor Co. Fla.
Seppel, Ark.
Quitman Co. Miss.
Gueydan, La.
Palestine, Tex.

species, together with Rails, Florida Gallinules, Kingfishers, Red-winged Blackbirds and one Pigeon Hawk. Practically all the ducks captured were either Black Ducks or Mallards, the majority being of the former species. Several Blue-winged Teals and two Ring-necked Ducks made up the total. The freezing of the marshes stopped trapping operations about November 19, or shortly after the larger flocks had left for their winter feeding grounds.

The shooting season in Ontario opens at the same time that the trapping was started, that is, on September 1, so it was inevitable that several of the banded birds should be killed close to the locality where they were marked. Mr. Osler reports that he had rumors of four or five thus killed, the band numbers of which he was unable to learn.

But when the big flight began about the middle of November, the shooting season was also open in every State from the Great Lakes to the Gulf of Mexico, so that the migrating birds had to run a veritable gauntlet of sportsmen, from whom the return records have been received. In considering these data it seems well to discuss the Mallards and Black Ducks together, since they seemingly followed the same route and in all probability moved in the same flocks.

The first band reported to the U. S. Biological Survey was from a Black Duck killed on October 30, at Pigeon Lake, Ontario, a few miles north of Lake Scugog. This, being a "short return," is of scant importance other than to indicate that the birds were still more or less stationary on that date. However, three days later, or on November 2, the next band, also from a Black Duck, was reported from Hay Bay, Ontario, a few miles to the south; and following this with gratifying regularity came the reports that traced the progress of the flocks in their journey to the winter feeding areas on the Gulf and South Atlantic coasts.

The course of all these migrating birds was apparently southwestward along the shores of Lake Erie by way of the St. Clair flats. Reaching the southern extremity of that lake, the route divided. The great majority continued the southwesterly course, cross-country to the Ohio River, which, flowing in the same general

direction, served as a highway to the Mississippi Valley. The second group of birds, which had separated from the main body in the vicinity of the southern shores of Lake Erie, shifted their direction of flight to the southeast, crossed the Alleghenies and reached the Atlantic coast by way of Chesapeake Bay. A study of the accompanying map will illustrate more graphically the routes taken by these two groups.

In discussing the data from these ducks, it becomes necessary to recognize a third group, which for some reason did not leave the region where they were banded until a much later period. This group was unquestionably small and there is, of course, the possibility that it was composed more or less of crippled birds or those that for some other physical reason were unable to make the flight to the south. It is, however, of some significance that Mallard No. 5104, banded on November 6, was killed on Long Point Bay, Ontario, on November 15, and that No. 5101, banded at the same time, was killed at the same place by the same hunter, on December 6. The season in Ontario closes on December 14, and no later records were secured, but in view of this single bit of information, it seems not improbable that a certain percentage of the birds at Lake Scugog in the fall were still in the contiguous country at the close of the year.

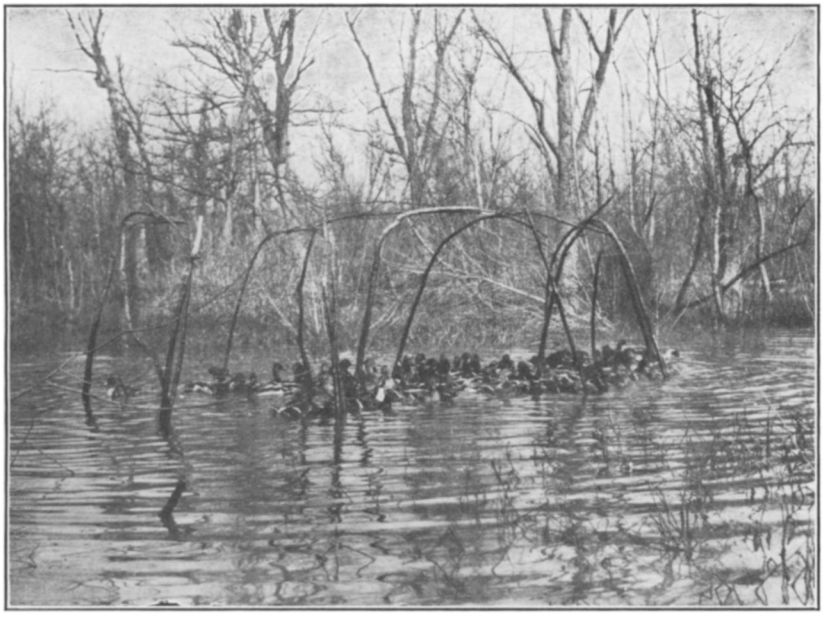
In studying the distribution of these "returns" it is worthy of note that with one exception (Meltonsville, Alabama) all the ducks were killed either along the Mississippi Valley or the Atlantic coast. It is also interesting to observe that, although both the Mallard and the Black Duck are common along the coasts of New Jersey, New York, and New England, only one of the Scugog birds was taken there, indicating that most of the ducks of these species that frequent the coasts and marshes in those sections, either breed in the region or come from northern territory nearer the coast. Southward from Back Bay, Virginia, banded ducks were reported in a fairly well-connected chain along the coasts of Virginia and North and South Carolina to Florida, where the records joined those made along the Mississippi Valley highway. Most of the Atlantic coast records are for December, January, and

February, at which time the birds were probably on their preferred winter feeding grounds.

Ducks of species other than the Mallard and Black Duck that were banded by Mr. Osler were considered too few to be of any material consequence, so it was a matter of surprise when return records for both of the Ring-necked Ducks were received. Both were killed on the Atlantic coast, one at Back Bay, Virginia, and the other in Georgetown County, South Carolina. In view of the fact that this species is not common on the Atlantic coast but is much more numerous during migrations in the Mississippi Valley, the presence on the Atlantic coast of the only two banded at Lake Scugog is of decided interest. They had probably reached the coast by the same route used by the Mallards and Black Ducks, if not actually with them.

Probably the greatest interest that attaches to any one of Mr. Osler's ducks is that of Blue-winged Teal No. 4576. This little duck was banded on September 24, in company with another of its own kind and eight or ten Black Ducks. Two months and seven days later it was killed by a hunter in the Caroni Swamp, near Port of Spain, Island of Trinidad. The flight made by this bird must have been close to 3,000 miles. For many years it has been known that some of the Blue-winged Teals and certain other ducks that breed in North America winter in South America. The presence of this species on the Island of Trinidad has been particularly noted, but there has been no information available to show from what part of the northern continent the birds came. The record of this individual is therefore of decided interest and value. The band was returned to the U. S. Biological Survey by the American Consul through the State Department.

To the conservationist the case of the Scugog ducks will afford interesting data on the mortality sustained by a given number of birds in one shooting season, which are of peculiar significance in view of the figures recently published of the number of ducks killed in one State during the open season. In 1920, Mr. Osler banded about 225 ducks of four species, all more or less sought by sportsmen, and three of the four particularly prized as table birds in almost every section of the country. During the few



PHOTOS FROM BIOLOGICAL SURVEY.

1. AUTOMATIC PEN TRAP, WATER-LILY LEAF SHAPE.
2. 'FYKE' NET USED AS A DUCK TRAP.

BOTH ON THE ILLINOIS RIVER MARSHES.

PHOTOS FROM BIOLOGICAL SURVEY.

1. LARGE SPRING TRAP (CUIVRE ISLAND, MISSOURI), FRONT VIEW.

2. DETAILS OF ONE OF THE TRIGGER RELEASES, SAME TRAP.

months of the open season of 1920–1921, at least thirty-five of these, or about sixteen per cent were killed. (These include those reported by Mr. Osler as killed at Lake Scugog, but of which the complete data were not secured.) If these figures or the figures that will later be secured through the comprehensive work now being developed by the U. S. Biological Survey may be considered as average, then an accurate computation of the number of ducks killed during any one shooting season may provide a satisfactory index to the total number of such birds in the country at that period. The great possibilities of the work should be readily apparent.

The following table contains the data for all "returns" of 1920 Lake Scugog ducks that were reported up to March 1, 1921.

Anas rubripes and Anas platyrhynchos

Number.	Date Banded.	Date Recovered.	Locality where Recovered.
4506	Sept. 3, 1920	Sept. 6, 1920	Lake Scugog, Ont.
4656	Oct. 1, 1920	Oct. 23, 1920	Lake Scugog, Ont.
4674	Sept. 18, 1920	Oct. 30, 1920	Peterboro, Ont.
4525	Sept. 14, 1920	Nov. 2, 1920	Hay Bay, Ont.
4610	Sept. 26, 1920	Nov. 4, 1920	Caesarea, Ont. } Lake Scugog
4697	Oct. 23, 1920	Nov. 7, 1920	Caesarea, Ont. }
4668	Sept. 19, 1920	Nov. 12, 1920	Lake St. Clair, Ont.
4670	Sept. 18, 1920	Nov. 15, 1920	Rice Lake, Ont.
5104	Nov. 6, 1920	Nov. 15, 1920	Port Rowan, Ont.
4519	Sept. 9, 1920	Nov. 16, 1920	Normandale, Ont.
4518	Sept. 9, 1920	Nov. 16, 1920	Port Clinton, Ohio
4698	Oct. 23, 1920	Nov. 18, 1920	Lake Scugog, Ont.
4602	Sept. 25, 1920	Nov. 18, 1920	Cape Fear River, N. C.
4581	Sept. 24, 1920	Nov. 19, 1920	Milton, Ind.
4612	Sept. 26, 1920	Nov. 19, 1920	Henderson, Ky.
4630	Sept. 20, 1920	Nov. 20, 1920	Walpole Island, Ont.
4688	Oct. 4, 1920	Nov. 23, 1920	Seyppel, Ark.
4611	Sept. 26, 1920	Nov. 23, 1920	Summerville, Tenn.
4597	Sept. 25, 1920	Nov. 26, 1920	Palestine, Texas
4640	Sept. 30, 1920	Nov. 27, 1920	Wrightsville Beach, N. C.
4592	Sept. 24, 1920	Nov. 29, 1920	Taylor County, Fla.
4616	Sept. 27, 1920	Dec. 4, 1920	Quitman County, Miss.
5101	Nov. 6, 1920	Dec. 6, 1920	Long Point Bay, Lake Erie, Ont.
4524	Sept. 14, 1920	Dec. 7, 1920	Gueydan, La.

Number	Date Banded	Date Recovered	Locality where Recovered
36986	Sept. 10, 1918	Dec. 22, 1920	Townsend, Va.
4549	Sept. 15, 1920	Dec. 28, 1920	Owensboro, Ky.
4543	Sept. 15, 1920	Jan. 1, 1921	Jamestown, Va.
4570	Sept. 18, 1920	Jan. 13, 1921	Georgetown, S. C.
5103	Nov. 6, 1920	Jan. 15, 1921	St. Andrew, Fla.
4568	Sept. 18, 1920	Jan. 29, 1921	Bull's Island, S. C.
4598	Sept. 25, 1920	Feb. 5, 1921	Meltonsville, Ala.
4637	Sept. 29, 1920	Feb. 20, 1921	Barnwell, S. C.
		Marila collaris	
4700	Oct. 29, 1920	Nov. 23, 1920	Back Bay, Va.
37304	Sept. 24, 1920	Jan. 5, 1921	Georgetown County, S. C.
		Querquedula discors	
4576	Sept. 24, 1920	Dec. 9, 1920	Port of Spain, Trinidad, B. W. I.

U. S. Biological Survey, Washington, D. C.

BIRD-BANDING AT THOMASVILLE, GEORGIA, IN 1922.

BY L. R. TALBOT.

Plates XV—XVII.

THIS story tells of the bird-banding experiences of a novice. That is, I was a novice when they began on the twelfth of March, although a month later, in view of the number of birds handled, I felt like a veteran. And in that one fact lies the point that I wish to emphasize at the outset: that one does not need to be an expert in bird-banding, or a professional ornithologist, in order to take up this new and fascinating and most important phase of bird-study. Anyone with a minimum of time and a love of birds can by this means add to his own enjoyment and knowledge, and can help the cause of scientific bird-study and protection.

On March 1, 1922, bird-banding was, so far as I was concerned, largely a myth. Before the end of the month it had become, for